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ABSTRACT

The ERIC (Educational Resources Information Center) citations in twenty doctoral dissertations in education, completed in 1969 and 1974 at the University of Illinois, were examined in this study. These dissertations dealt with research in health occupation, reading, career, mathematics, music, and English education. Comparisons were made between ERIC and non-ERIC citations, and between CIJE (Current Index to Journals in Education) and RIE (Resources in Education) citations. Frequency counts and percentages of citations in different categories were indicated. User profiles were compared with previous research results. (SC)

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ERIC AS CITED BY DOCTORAL DISSERTATIONS IN EDUCATION

A STATISTICAL ANALYSIS WITH COMMENTARY

Duane Crawford

CHAMPAIGN, ILLINOIS

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IR 004 538

An evaluation of ERIC through a statistical count of citations to ERIC documents and journals found in twenty doctoral dissertations in Education done at the University of Illinois in 1969 and 1974 reveals that Current Index to Journals in Education counted for 61% and Research in Education for 39% of the citations to ERIC abstracting tools. Fifty-six percent of all journals referred to were covered by CIJE. Twenty-one percent of all book, paper, symposium, government document, report, serial, and speech references were covered by RIE.

ERIC tools accounted for 543 of 1612 references or 34%. Only 14% of the total number of journals covered by CIJE were cited (94 of 672). Government documents appeared 39 times for 18%; reports 27 times for 13%; books of articles 19 times for 9%; papers 9 times for 4%; serials 9 times for 4 %; and a symposium and a speech 1 time each for .5% each. Books accounted for 51% of all ED citations. See Table 2.

"Books of Articles" include articles cited in a published book which have an author and usually an editor and a unique title. "Papers" are identified as papers presented at meetings usually of an association. "Symposium" was a heading that yielded one reference and maybe could have been included with "Serials." "Government Documents" included federal, state, international, and municipal documents and government sponsored research reports.

"Serials" were proceedings, annuals, and annals. "Reports" included those from departments within a university or research reports from a corporation. These are somewhat fugitive because they are not easily obtained through commercial channels. Those citations which did not include an imprint but an ED number were considered reports. "Books" include monographs, association publications, tests, and university press publications.

The fact that RIE abstracted 21% of the total book citations is good when you consider the amount of books that are published in the world, plus all the research reports and government documents. I believe that the Clearinghouses glean the best from the unpublished fugitive literature.

Figure 1 reveals some interesting things about the 20 dissertations.

Figure 1. Percentages of ED Citations as Compared to Total Book Citations.

1	27%	6	33%	11	19%	16	36%
2	60%	7	15%	12	27%	17	15%
3	50%	8	17%	13	38%	18	4%
4	31%	9	14%	14	50%	19	2%
5	13%	10	15%	15	1%	20	0%

Thesis 2 with 60% hits is entitled Professional Needs of Teachers of Health Occupations Programs, 1974. Half of all citations were found for Theses 3 and 4. Their titles are respectively Patterns of Intellectual Functioning as Related to Sex Differences in Beginning Reading, 1974, and Attitudes of Illinois Public School Administrators Toward Selected Issues in Career Education, 1974. Three dissertations achieved on-third hit ratio or better.

No success was achieved by Thesis 20 called Effect of Role Conflict on the Impression Management of Schizophrenics, which is about psychology. Thesis 15 scored a very low score but had the highest book citation total of 198; it is called An Analysis of Social factors Affecting Education in Sierra Leone, 1951-1966. Of the non-ED citations in Thesis 15 110 were to books about this West African country and its education and another 57 were largely Sierra Leone and Great Britain documents and some international government documents.

Mathematics is the real subject of Thesis 19, which had only 4 hits. Graphical Representations of Groups is about such concepts as Riemann surfaces, the theories of groups, and elliptic functions. The hits were for So

such books as Goals for School Mathematics.

It is easier to find materials on educating a group of people such as teenagers, exceptional children, the physically or mentally handicapped than it is to get material on educating in a subject area. ERIC is more interested in the theory of teaching than in what to teach.

Music as a subject for Thesis 17 didn't fair too well with 15% hits. The bibliography of An Application of Bruner's Theory of Mental Growth to the Teaching of Musical Concepts in Beginning Instrumental Music, 1969, shows that of 6 citations to Jerome S. Bruner only one article in a book is in RIE. Again the hits include such basic but general books A Study of Music in the Elementary School: A Conceptual Approach. It also includes one very specific report ED028200 called "How Children Conceptually Organize Musical Sounds.

Theses numbers 3, 5, and 13 deal with reading. Thesis 3 scored 50% of the time, as already noted. Thesis 5 which is The Functional Relationship Between an Attending Program and Beginning Reading, 1974, scored 13% ED's with two references to a government document and an article in a book about education of the retarded child to read.

Thesis 13, A Program of Professional Readings for Secondary English Teachers Who Teach in Illinois Schools with Fewer than 350 Students, 1969, is a massive 374-page bibliography of readings. As the major work for Alfred Junior Lindsey was to review and then list the best professional literature, the 97-citation bibliography shows that he probably got 36% of his book citations through RIE.

Table 2 shows that books were cited in RIE (109 of 214 total ED citations) or 51% of the time. Books of Articles were cited 8.9%, Government Documents 18%, Reports 13%, Papers 4.2%, Serials 4.2%, and symposiums and speeches (1 of 214) .46% each.

Mindy Kline who is librarian of the ERIC Early Childhood Education clearinghouse says that 81% of items in Resources in Education are available as both microfiche and paper copy from ERIC (Kline, # 1). I found much less success. In an analysis of the ED numbers that I found for 214 citations in the 20 dissertations 31% were available from the original publisher or distributor while only 69% were available from ERIC through RIE or a computer search of ERICTAPES. In figures that is 67 of 214 available from publishers and 147 of 214 available through ERIC. In the Title Index to Resources in Education, which covers 1956 to 1974, ED numbers are followed by a pound sign if the item is available only from the original publisher or distributor.

I was finding much material originally published in some form by universities and associations was available from Resources in Education. It is difficult to understand why some of the books were omitted from ERIC. John Holt's How Children Fail (New York, Pitman, 1964) is an example.

One report gave me a real question on how it could not be in ERIC. Robert Reese's Vocational Technical Education in Sierra Leone, 1957-1959 is put out by the College of Education of Ohio State University where the Vocational and Technical Education clearinghouse was operating in 1970 (North Dakota. University. ERIC. ERIC at UND, #2). The answer is that Ohio State University's Vocational and Technical Education clearinghouse was then contributing to another ERIC abstract called AIM/ARM that I did not survey but could have abstracted this report.

It should be noted that at the start of this citation analysis I spent inordinate amounts of time checking each citation against the author indexes covering 1956-1969, 1970-1971, 1972, 1973, and 1974. Thesis 3 took three hours to check this way. Upon a trip to ERIC/ECE I learned they had a Title Index covering these same years, which had not been available at the Education and Social Science Library.

The Title Index proved much faster and much more accurate upon rechecking theses 1 through 5. I would estimate that it was 4 times faster to check by title.

My methods were to make only exact matches. For example, the 32nd Yearbook of the Claremont Reading Conference was cited, but only the 34th Yearbook was in RIE. Also, A. MacCaffrey's Communicative Competence and the Disadvantaged Child, Progress Report, was cited, but only the final report is in RIE.

Some citations were just plain awful, as "Gerth, H.H., and C. Wright Mill (trans. and eds.) From Max Weber: Essays in Sociology. I had to look under "From" and "Essays." This same student put the translator and the author in that order. There are 9 and 60 ways of constructing bibliographies and every one of them isn't right.

Journals seem easier for the doctoral students to handle although one student listed "Monaghan, W. G. Re-examing an Assumption: The Adaptation of Schools to the Culturally Different, (Current Index of Journals in Education), EJ 034-046, 1971." This entry isn't even to a specific journal. It is to a resume in Current Index to Journals in Education..

In only one paper did the student consistently put down the ED number, and then he did not put down the imprint to show what institution printed it. I disagree with Turabian's current practice of omitting the

imprint from literature found through ERIC's RIE. The student should be able to copy the basic bibliographic data which is contained in every ERIC abstract. A good citation would look like so:

> Hall, Keith A., and others. Inservice Mathematics Education Via Computer Instruction for Elementary School Teachers in Appalachia. Final Report. University Park, Pennsylvania State University, Computer Assisted Instruction Laboratory, January 1970. ERIC ED042334.

A final note on RIE citations is necessary. Table 1 shows that the twenty dissertations average 10 RIE a piece with a high of 54 for Thesis 3 and a low of no citations for Thesis 20.

Table 3 shows the other side of the coin: those types of written material that are not included in Research in Education. There were 1021 citations that could have been in RIE, excluding mimeos, manuscripts, lectures, and 58 dissertations. Of these 1021, 807 were non-ED's for 79%.

Of the 807 non-ED's 65% are books, 14.4% are books of articles, 11.4% are government documents, 3.6 are reports, 3.6 are serials, and 1.2% are papers. Books, books of articles, government documents, and some reports can be found through the University of Illinois card catalog. If for some reason the University of Illinois Libraries didn't have them the doctoral students must have got them through interlibrary loan through Library of Congress Author Catalog and the various editions of the National Union Catalog. Government publications at the federal government can be found in Monthly Catalog and state publications through Monthly Checklist of State Publications. The point is that most of these items can be searched through other tools. The research reports are more of a problem unless they are sponsored with government monies.

Books of articles were a category that I though would show up much more than it did as ED citations. A reason that they don't appear very often may be that indexing is done in the Author Index by the editor rather than for each author of every article. Another problem that might discourage abstracters is that many books of readings are rather loosely defined as to toric and an abstract would be rather hard to make.

Current Index to Journals in Education which now indexes in whole or in part 750 journals (Houston, # 3) is a real success in accounting for 56% of the journal citations (329 of 591). As I have already indicated 61% of ERIC citations found in these 20 dissertations are to CIJE journals.

Figure 2 JOURNALS CITED MOST IN CIJE	CITATIONS PER THESIS	TOTAL	THESIS NUMBERS*
American Journal of Mental Deficiency	13,1	14	1
American Journal of Orthopsychiatry	7,2,3,1	13	1
American Vocational Journal	10	10	2
Child Development	8,2,8	18	3,16
English Journal	8	8	13
Exceptional Children	6,1	7	6
Journal of Consulting and Clinical Psychology	9,1,1	11	1
Journal of Educational Psychology	6,1,2	9	3
Kappa Delta Pi Record	7	7	2
Mathematics Teacher	10,1	11	19
Music Educators Journal	8	8	17
West African Journal of Education	5	5	15

* The theses numbers are noted for dissertations which cited over 5 times.

Thirteen of 94 journals accounted for 136 citations of the 329 total

Ed's. Fourteen per cent of the journals accounted for 42% of the citations. They were cited between 5 to 18 times in from 1 to 4 theses. Of 578 journal titles indexed and abstracted in CIJE 86% were never cited.

Child Development was cited 18 times in three dissertations, and American Journal of Orthopsychiatry 13 times in four dissertations. American Journal of Mental Deficiency was cited 13 times by one dissertation.

Note than Thesis 1 called Relationships Between Task-Irrelevant Environmental Distractions and Task Performance of Normal, Retarded Hyperactive, and Minimal Brain Dysfunction Children cited three psychology journals 7, 9 and 13 times. It would be hard to determine except through interview how Marjorie Steinkamp found these; it may have been through CIJE and Psychological Abstracts.

Thesis 2 entitled Professional Education Needs of Teachers of Health Occupations Programs two journals 10 and 7 times each. Thesis 3 entitled Patterns of Intellectual Functioning as Related to Sex Differences in Beginning Reading cited two journals Child Development and Journal of Educational Psychology 8 and 6 times each.

I conclude that dissertations are shaped by one journal 2/3 of the time and by two or three main journals 1/3 of the time, if five citations to the same journal is considered significant.

Now I would like to critique Bernard Fry's Evaluation Study of ERIC Products and Services (#4) to show how graduate student users fit into the total use pattern.

Fry's Evaluation Study of ERIC Products and Services sent questionnaires to many ERIC users of which 437 responded. From their responses he analyzed who the users are, how their use of CIJE compares with Education Index and with Research in Education. He demonstrates statistically how successful the products and services of ERIC are in meeting the needs of its users and suggests what should be done to improve Educational Resources Information Service and its information storage and retrieval system in the future. The report is in a lengthy four volumes of microfiche and a summary volume. I used the summary volume and volume one because it gave me an overview of how well ERIC is doing as far as graduate students are concerned. (Fry, #4 and #5).

Table 1.4 of the Evaluation (#4) shows the mean number of users of ERIC publications per week by primary association. People from colleges and universities used RIE 17 times while the overall use was 124. Academic use was then 14%. Academic use of CIJE was 16 times of an overall use of 90 times a week for 18%. The searches of RIE brought academic people to use microfiche 17 times per week out of a total use of 116 times. The percent of academic use of microfiche was 15%. Academics also used hard copy 11 times while total use was 88 times for 12.5% of the use.

Table 1.5 of Fry's Evaluation (#4) charts the mean frequency of usage of ERIC publications for 1970 by occupation per individual users. Graduate students used RIE 4.44 times, CIJE 3 times, microfiche 7.23 times, and hard copy 11 times.

Graduate students were therefore 4.44 of 12% overall use for 3.5%. Of college and university users graduate students were 20% of the users of RIE. For CIJE graduate students were $3\frac{1}{3}$% of the total users and 18.75% of college and university users.

Table 1.6 of Fry's Evaluation (#4) gives the estimated mean usage per individual of special document collections during 1970 by occupation. Graduate students used Pacesetters in Innovation 7.14 times per person, the Catalog of Selected Documents on the Disadvantaged 7.07 times per person, the Manpower Research Inventory 7.07 times per person, and Office of Education Research Reports, 1956-65, 4.95 times per person. In all graduate students used 4 special document collections during 1970 an average of 6.5 times.

Fry sums up some of the problems when he says, "Because the field of document-information transfer in education areas is so broad and complex--and primitive--much investigation remains to be done before a national document-information system can make its full contribution to educational communication." He continues with "Nine of every ten users reported that they obtained information through the ERIC system which they probably would not have found otherwise. For most of the users, the frequency of this experience varied between one and ten times." (#4, page 25).

Fry characterizes ERIC users as follows, "Approximately one-half of ERIC users were associated with colleges and universities: one-fourth were local school personnel. Graduate students and teachers were the most numerous users of ERIC products and services."

I looked through vol. 1 of the Final Report and didn't use by doctoral students broken down. (#5, p. 57-60). About ½ of the users (49.3%) were from colleges and universities. Fry explains, "This heavy emphasis on ERIC use by persons from colleges or universities is also documented in the tabulation of persons that have conducted research (49.6%) and those that have not conducted research (52.8%)." Since these two figures don't add up to 100% some respondents must have said they did and they didn't do research.

Fry continues, "It is interesting to note that of the 442 respondents, almost 1/3 of them were graduate students (131) and almost 1/4 of the respondents were teachers (99). More than 50% had conducted research (228) and approximately 1/4 of the respondents had published professionally (115)."

The Summary Volume by Fry (#4, p. 27) says, "The typical ERIC user is a female graduate student or teacher about thirty years old with a master's degree. She likely has conducted research but has not yet published professionally." He goes on to say that five of ten users held a master's degree, the average age was 35, and slightly more than half were female.

At the University of North Dakota Library the ERIC staff held many class sessions for undergraduate and graduate students. The ERIC Center processed in April of 1976 1000 users who requested 3000 microfiche and microfilm. In the 1974-1975 academic year 2127 users requested 7903 microfiche, 1723 searches were done of which 1582 searches were by batch mode computer search, and 5000 hard copy sheets were reproduced from microform. (North Dakota. University. ERIC. Unpublished data, #6).

Table 3D (Fry, #5, p. 59) reveals that "The ERIC sytem is used primarily by recent college graduates whose primary affiliations are with colleges and universities. One might hypothesize that the majority of users are graduate students involved in a research activity."

Fry continues, "When asked about professional interest areas, the ERIC Users did not respond particulary well. Approximately 1/5 of the persons filling out the questionnaire did not answer this question (see Table 3F). The persons that did respond did not show a particular predisposition to any of the ERIC organizational classifications. Rather, the primary interests of the ERIC users seem to be scattered across the possible classifications. The Reading (15.6%) and the Library and Information Services (12.3%) were slightly higher than the other categories with respect to the percent of users' interests. This would indicate that persons with a wide variety of academic preparation and interest use the ERIC system rather than persons of similar interests."

Fry summarizes (#5, p. 60), "Generally, these data suggest that: slightly more females than males use the ERIC system; about 90% of the users are college graduates; most of the users are 35 years of age or less; about 1/3 are graduate students: about 1/4 are teachers; over 1/2 of these persons have conducted research; about 1/4 have published; and no academic interest group in the educational community dominates the use of the ERIC system." To put it exactly graduate students, according to Table 3H, comprise the largest percentage of the users at 27.9%. How many of these are doctoral students is not shown.

How these doctoral students obtained information may be indicated by the facts that 22.4% indicated journal articles were the most important channel of communication; 18.8% said oral communication; and 11.7% said abstracting and indexing services. Journal articles were chosen

as the second most important channe of communication by 22.1% of ERIC users. Books and monographs were named as the second most important channel by 16.4%.

Photocopy charges for reproducing the title pages and bibliographies from the dissertations of which five were on microfilm totaled $21. The Dialog search of ERICTAPES cost $7.49.

TABLE I JOURNAL CITATIONS WHETHER IN CIJE OR NOT: BOOK CITATIONS WHETHER IN RIE OR NOT.

THESIS NUMBER	THESIS YEAR	JOURNAL CITATIONS	CIJE CITATIONS	NON-CIJE CITATIONS	BOOK CITATIONS	ED CITATIONS	NON-ED CITATIONS	TOTAL JOURNAL & BOOK CITATIO
1	74	121	49	72	56	15	41	177
2	74	25	24	1	55	33	22	80
3	74	67	52	15	108	54	54	175
4	74	1	1	NONE	16	5	11	17
5	74	5	1	4	15	2	13	20
6	69	14	12	2	33	5	28	47
7	69	23	20	3	26	4	22	49
8	69	10	4	6	42	7	35	52
9	69	17	13	4	14	2	12	31
10	69	5	5	NONE	46	8	38	51
11	74	28	22	6	26	5	21	54
12	74	11	4	7	59	16	43	70
13	69	49	30	19	48	18	30	97
14	74	6	5	1	12	6	6	18
15	69	76	18	58	198	2	196	274
16	74	40	25	15	66	24	42	106
17	69	19	15	4	27	4	23	46
18	69	10	9	1	50	2	48	60
19	74	40	13	27	100	2	98	140
20	69	24	7	17	24	NONE	24	48
TOTALS		591	329	262	1021	214	807	1612

	THESIS YEAR	JOURNAL CITATIONS	EJ CITATIONS	NON-EJ CITATIONS	BOOK CITATIONS	ED CITATIONS	NON-ED CITATIONS	TOTAL JOURNAL & BOOK CITATIO

TABLE 2 A STATISTICAL BREAKDOWN BY TYPE OF MATERIALS THAT WERE FOUND IN RIE.

THESIS NUMBER	TOTAL ED CITATIONS	BOOKS	BOOKS OF ARTICLES	PAPERS	SYMPOS-IUMS	GOVERN. DOCUMENTS	REPORTS	SERIALS	SPEEC
1	15	7	1			1		6	
2	33	13	2			7	11		
3	54	33	1	9		7	1	3	
4	5	1				4			
5	2		1			1			
6	5	4					1		
7	4	1				2	1		
8	7	3	3			1			
9	2						2		
10	8	8							
11	5	2	2				1		
12	16	6	3			4	3		
13	18	12	2			3			1
14	6	2				4			
15	2	1	1						
16	24	12			1	5	6		
17	4	2	1				1		
18	2		2						
19	2	2							
20	NONE								
TOTALS	214	109	19	9	1	39	27	9	1

	TOTAL ED CITATIONS	BOOKS	BOOKS OF ARTICLES	PAPERS	SYMPOS-IUMS	GOVERN. DOCUMENTS	REPORTS	SERIALS	SPEEC

TABLE 3 A STATISTICAL BREAKDOWN BY TYPE OF MATERIALS THAT WERE NOT FOUND IN RIE.

THESIS NUMBER	NON-ED CITATIONS	BOOKS	BOOKS OF ARTICLES	PAPERS	SYMPOSIUMS	GOVERN. DOCUMENTS	REPORTS	SERIALS	OTHER
1	41	24	11	2	1	1	1	1	1
2	22	13	1			3	5		2
3	54	33	9	2				10	6
4	11	4	2			3		2	3
5	13	9	3			1			2
6	28	14	6			2	4	2	5
7	22	16	5					1	10
8	35	17	13			3	1	1	4
9	12	6				4	2		
10	38	32	3					3	1
11	21	13	7					1	7
12	43	30	5			7	1		2
13	30	22	6			2			5
14	6	4				2			7
15	196	110	20			57	8	1	10
16	42	17	14	6	1	2	1	1	3
17	23	13	3			4	3		10
18	48	40	6					2	
19	98	92					2	4	1
20	24	18	3		1	1	1		2
TOTALS	807	527	117	10	3	92	29	29	48
	NON-ED CITATIONS	BOOKS	BOOKS OF ARTICLES	PAPERS	SYMPOSIUMS	GOVERN. DOCUMENTS	REPORTS	SERIALS	OTHER

OTHERS are not included in the Non-ED citations because the 66 include 7 mimeos and manuscripts 1 lecture, and 58 dissertations that are excluded from the coverage of ERIC's RIE.

TITLES OF THE TWENTY DISSERTATIONS ANALYZED

1. Relationships Between Task-irrelevant Environmental Distractions and Task Performance of Normal, Retarded Hyperactive, and Minimal Brain Dysfunction Children, by Marjorie Walker Steinkamp, 1974.

2. Professional Education Needs of Teachers of Health Occupations Programs: A Survey of Teachers and Employers, by Norma Jean Schira, 1974.

3. Patterns of Intellectual Functioning as Related to Sex Differences in Beginning Reading, by David Leo Tucker, 1974.

4. Moves, Strategies and Modes of a Concept Venture in Secondary School Mathematics, by Elaine Blanche Pavelka, 1974.

5. The Functional Relationship Between an Attending Program and Beginning Reading, by Ely Rayek Zaga, 1974.

6. Student Role Performances: A Case Study in the Professionalization of Special Educators, by Robert Wayne Heiny, 1969.

7. Attitudes, Self Acceptance, Self Descriptions and Student Teaching Success, by Stephen Francis Foster, 1969.

8. The Relationship of Innovation and Complexity in Public School Systems, by Donald George Gill, 1969.

9. A Follow-up Study of the 1940 Class of Champaign High School, by Dennis Alan Dahl, 1969.

10. Three Curriculum Projects and Value Education, by Rossie Jerrald Shive, 1969.

11. The Training of Resident Advisors as Primary Interventionists, by Andrew Frank Czopek, 1974.

12. A Field Study of Occupational Program Discontinuance in Selected Illinois Community Colleges with Implications for Program and Staff Development, by Joseph Adrian Borgen, 1974.

13. A Program of Professional Readings for Secondary English Teachers Who Teach in Illinois Schools with Fewer Than 350 Students, by Alfred Junior Lindsey, 1969.

14. Attitudes of Illinois Public School Administrators Toward Selected Issues in Career Education, by Marvin Edward Barth, 1974.

15. An Analysis of Social Factors Affecting Education in Sierra Leone, 1951-1966, by David Ondeng Imig, 1969.

16. Language Growth of Day Care Children: Long Term Enrollment Effects on Vocabulary, Language Comprehension and Language Production, by Patricia Juanita Eggleston, 1974.

17. An Application of Bruner's Theory of Mental Growth to the Teaching of Musical Concepts in Beginning Instrumental Music, by Jacquelyn Boswell, 1969.

18. Administrator's Preferences for Faculty and Student Participation in University Policy-making, by Milo Charles Pierce, 1969.

19. Graphical Representations of Groups: A Historical Development with Implications to Pedagogy, by Everett Douglas Gibson, 1974.

20. Effect of Role Conflict on the Impression Management of Schizophrenics, by Daniel E. Kiley, 1969.

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